

CLASSIFIED MESSAGE

ROUTING

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FOLLOWING IS RECOMMENDED INSPECTION PROCEDURE FOR TURBINE  
BLADE SHINGLING IN J75-P-13 ENGINES:

1. INSPECTION PROCEDURE SHOULD BE CONDUCTED BY TWO  
MEN. ONE MAN IN TAILPIPE TO PERFORM ACTUAL INSPECTION  
AND ONE MAN TO TURN N2 (HIGH PRESSURE) ROTOR MANUALLY  
BY ROTATING STARTER IMPELLER AT STARTER SUPPLY AIR DISCHARGE  
PORT.

2. INDIVIDUAL WHO PERFORMS ACTUAL TURBINE VISUAL INSPECTION  
SHOULD ENTER TAILPIPE AND CRAWL ON LOCALLY FABRICATED  
PADDED BOARD CONSTRUCTED TO DISTRIBUTE HIS WEIGHT AS  
EVENLY AS POSSIBLE ON TAILPIPE. INSPECTOR SHOULD HAVE  
ON HIS PERSON NO HARD OR LOSE OBJECTS WHICH COULD CAUSE  
LOAD CONCENTRATIONS ON TAIL PIPE OR BE LEFT IN TAILPIPE.

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A LIGHT BRIGHT ENOUGH TO PROVIDE GOOD VIEW OF ALL TURBINE STAGES IS REQUIRED. THIS INDIVIDUAL SHOULD BE THOROUGHLY BRIEFED TO RECOGNIZE VISUALLY ALL THREE ROTATING TURBINE BLADE ROWS AS VIEWED FROM REAR AND BE ABLE TO RECOGNIZE POSITION OF STATIONARY VANE ROWS WITH RESPECT TO ROTATING BLADE ROWS AND RECOGNIZE APPEARANCE OF SHINGLING CONDITION. THE SECOND AND THIRD STAGE BLADES ROTATE TOGETHER ON N1 ROTOR AND THE FIRST STAGE BLADES ROTATE ON N2 ROTOR.

3. INSPECTOR IN TAILPIPE SHOULD CAREFULLY INSPECT BLADE TIP SHROUDS ON ALL THREE STAGES FOR SHINGLING CONDITION. N1 ROTOR CAN BE ROTATED MANUALLY BY TURNING 3RD STAGE TURBINE BLADES IN CLOCKWISE DIRECTION TO VIEW 2ND AND 3RD STAGE BLADE TIP SHROUDS. THE TURBINE BLADES MUST BE TURNED IN CLOCKWISE DIRECTION ONLY. THE FIRST STAGE BLADE TIP SHROUDS CAN BE INSPECTED BY SLIGHT CLOCKWISE TURNING OF 3RD STAGE BLADES AND CAREFUL FOCUSING OF LIGHT UNTIL FIRST STAGE BLADE TIP SHROUDS CAN BE VIEWED AT ONE POSITION. THEN BLADE TIP SHROUDS AROUND ENTIRE PERIPHERY OF 1ST STAGE CAN BE INSPECTED AS N2 SPOOL IS SLOWLY ROTATED BY SECOND MAN MANUALLY TURNING STARTER IMPELLER. DUE TO INTERSHAFT BEARING DRAG IT MAY BE NECESSARY FOR THE INSPECTOR TO HAND HOLD THE N1 ROTOR (THIRD STAGE TURBINE BLADES) TO PREVENT THE N1 ROTOR FROM TURNING WHEN THE N2 ROTOR IS TURNED FROM THE STARTER.

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4. ASSISTANT WHO ROTATES N2 SPOOL BY TURNING STARTER IMPELLER AT STARTER SUPPLY AIR EXHAUST OPENING CAN BEST ACCOMPLISHED THIS TASK BY LYING ON BACK UNDER AIRCRAFT, REACHING THROUGH HATCH OPENING AND TURNING IMPELLER BLADES. IMPELLER BLADES MUST REPEAT MUST BE TURNED COUNTER CLOCK WISE DIRECTION AS VIEWED FROM FRONT OF AIRCRAFT. A GLOVE SHOULD BE WORN ON HAND USED TO TURN IMPELLER TO AVOID DAMAGE TO HAND OR IMPELLER. APPROXIMATELY TWENTY COMPLETE ROTATIONS OF STARTER PROVIDE ONE COMPLETE ROTATION OF N2 SPOOL. HOWEVER ONE COMPLETE ROTATION OF THE FIRST STAGE TURBINE CAN BEST BE DETERMINED BY INSPECTOR IN TAIL PIPE COUNTING PASSAGE OF ALL 108 FIRST STAGE BLADE SHROUD TIPS PAST HIS VIEWING POSITION THROUGH 2ND AND 3RD STAGE VANES AND BLADES TO ASSURE THAT COMPLETE FIRST STAGE HAS BEEN INSPECTED. UNDER NO CONDITION SHOULD ANY OBJECT BE USED TO MARK BLADES AS A MEANS OF DETERMINING THAT A COMPLETE REVOLUTION OF TURBINE WHEEL HAS BEEN COMPLETED AS THIS PRACTICE WOULD RISK DAMAGE TO TURBINE.

5. IT IS DESIRED THAT EACH CHIEF OF MAINTENANCE SPECIFICALLY IDENTIFY PERSONNEL TO ACCOMPLISH THIS INSPECTION AT THE HOME STATION AND WHILE ON DEPLOYMENT. SUCH ACTION WILL ASSURE THAT INSPECTIONS ARE PERFORMED BY QUALIFIED PERSONNEL.

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